ABSTRACT

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The relationship among stress, the HPA and placental axis, fetal behavior and birth outcome was examined with a biopsychosocial model in over 300 pregnant women. The specific questions were: (i) *Does episodic and chronic stress affect the maternal neuroendocrine axis during the third trimester of pregnancy?* During the normal course of pregnancy the development of the placenta results in a remarkable elevation of ACTH, B-endorphin (BE), CRH and cortisol. Against this background of increased activity, we discovered that third trimester measures of ACTH was most responsive to psychosocial stress and that BE was a sensitive predictor of the probability that maternal anethesia would be used at birth. The disregulation index (DI) that quantified the relationship between plasma levels of BE and ACTH, also was sensitive to maternal stress. (ii) *What is the influence of maternal stress and HPA changes on birth outcome?* Increased psychosocial stress was associated with lower birth weight and decreased gestational age at birth after controlling for antepartum risk. Maternal CRH levels, independently of antepartum risk, significantly predicted gestational age at delivery and preterm delivery. (iii) *What is the effect of maternal stress and HPA changes on the fetus?* A procedure was developed to measure the ability of the human fetus to learn and predict external environmental events. In a subgroup of 95 fetuses, clear evidence of habituation and dishabituation was obtained. Maternal changes (from post-partum baseline) in BE during the third trimester influenced the sensitivity of the fetus to novel information. Models for understanding these findings will be discussed.

Source: https://www.industrydocuments.ucsf.edu/docs/pqcb0000